

IN THE CLAIMS:

Cancel claim 9, without prejudice.

Amend claims 5 and 8 as follows:

5. (Twice Amended) A method for determining and controlling the material flow of continuous-cast slabs by monitoring and optimizing the temperature on the transport path of the continuous-cast slabs between the continuous-casting installation and a rolling mill, said method comprising the steps of :

a. determining a temperature of the liquid phase of the continuous-cast slab at a mold exit of the continuous-casting installation and physical parameters of the continuous-cast slab including temperature-dependent material values comprising at least one of density ρ , specific heat C_p , thermal conductivity λ , and scale properties and determining a surface temperature of the continuous-cast slab;

b. determining an amount of heat and a temperature profile of the continuous-cast slab by calculating the convective mixing of the amount of heat contained in the continuous-cast slab and the time-dependent heat loss from the inhomogeneously cooling of the continuous-cast slab, wherein the step of calculating comprises using a mathematical-physical model calculated using one of a two-dimensional finite element method, a finite difference method, and software using formulas derived from off-line studies; and

c. controlling the material flow of the continuous-cast slab between the continuous-casting installation and rolling mills via a slab-monitoring system of the continuous-casting installation and using the surface temperature of the slab determined in said step a. and the amount of heat and the temperature profile determined in said step b. as an input to the slab-monitoring system.

8. (Twice Amended) The method of claim 5, wherein [said step a. further comprises determining a surface temperature of the continuous-cast slab, said step c. comprises using a surface temperature of the continuous-cast slab determined in said step a. as an input to the slab monitoring system, and] said step c. further comprises automatically controlling the material flow via the slab monitoring system based on the amount of heat and the temperature profile determined in said step b. and the surface temperature of the continuous-cast slab.